The Recovery of Hexavalent Chromium from Dilute Waste Streams Using a Three-Dimensional Carbon Felt Electrode.

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In this poster we report on the electrochemical behaviour of Cr(VI) in aqueous acidic solutions.

A **novel electrochemical tube cell** is used for the examination of redox processes occurring at a carbon felt electrode under static and flow conditions to study model waste solutions. The kinetics of the reduction of Cr(VI) were evaluated as a function of pH, flow rate, current density and electrode material.

The control of pH was essential in achieving good removal of total chromium. Samples were analysed by **atomic absorption spectroscopy** to determine the total chromium concentration and the surface of the carbon felt electrodes were analysed using SEM and EDAX. The performance of different types of felts was evaluated; carbon felt of low-density constitution, of high-density, of different thickness and graphite felt. The uniformity of Cr(III) deposits within the porous electrode is discussed. The double layer capacitance of a carbon felt electrode used for reducing Cr(VI) to Cr(III) was established using **electrochemical impedance spectroscopy.**

Acknowledgement: The authors would like to acknowledge the financial support from the European Union through the Marie Curie programme (industrial host fellowship).